



LOUISIANA NATURAL AND SCENIC RIVERS SYSTEM

PERMIT APPLICATIONPermit # 896 (Assigned by Department)

The Louisiana Department of Wildlife and Fisheries' Scenic Rivers program is authorized by LRS title 56, Chapter 9 Part II. This law requires permits authorizing activities in or affecting rivers that have been designated by the Louisiana Legislature as Natural and Scenic. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary, however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

APPLICANT INFORMATION

Name of Applicant	Goodrich Petroleum Corporation	Name of Agent (if any)	Sterling Global
Address	801 Louisiana, Ste 700	Address	P.O. Box 520
Address		Address	
City, State, Zip	Houston, TX 77002	City, State, Zip	Denham Springs, LA 70727
Phone	713-780-9494	Phone	

DESCRIPTION OF THE PROPOSED ACTIVITY

Brief summary of the description and purpose of the proposed activity (details to be attached as a separate document)

Water extraction for use in hydraulic fracturing of oil well.

Is any portion of the activity complete? YES ☒ NO (If yes indicate month and year of completion)

LOCATION OF PROPOSED ACTIVITY

Stream Name	Tangipahoa River	Names, Addresses, Phone Numbers of Adjacent Property Owners
Parish	Tangipahoa	See Attached Land Owners Map - Tab 10
Section	060	
Township	T02S	
Range	R07E	
Latitude/Longitude	30°52'33.40N / 90°29'42.95W	

ENVIRONMENTAL ASSESSMENT

Must be a separate document. See the attached instruction sheet for completing the assessment.

CONFIRMATION OF INFORMATION ACCURACY

Application is hereby made for a Scenic River Use Permit to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that, to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities, or I am acting as the duly authorized agent of the applicant.


Signature

4/17/14
Date

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Goodrich Petroleum Corporation

Tangipahoa Parish, Louisiana

Project Description

Surface water will be withdrawn from the upper Tangipahoa River via a self-contained trailer mounted pump to be used to hydraulically fracture the Tuscaloosa Marine Shale. The surface water used for fracturing that returns as flow-back will be disposed of in an injection well permitted by LDNR.

Goodrich Petroleum is the end user of the surface water but will use a sub-contractor for pumping, temporary transfer lines and for water storage. The withdrawal point is located on the west bank of the upper Tangipahoa River next to LA highway 440. The site is located at section 60, T02SR07E60 at latitude 30°52'33.40N and longitude 90°29'42.95W. By locating the pumps on an un-paved road the disturbance of the land surface will be negligible. No sediment will be released into the Tangipahoa River.

Commissioner of Conservation, Jim Welsh, encourages "oil and gas operators to use the available surface water resources or other acceptable alternative water sources in the Central and Florida parishes of Louisiana, where practical and feasible." Goodrich Petroleum by using surface water can protect ground water supplies that are used for public and private drinking water.

The estimated daily withdrawal rate is 20,000 barrels for 30 consecutive days, for a total volume of 600,000 barrels. The maximum withdrawal rate will not exceed 2,500 gallons per minute. Goodrich Petroleum will stop withdrawal activities if the river discharge drops below 300 ft³/sec as measured at the downstream USGS flow gaging Station # 07375500 near Robert, LA.

An impermeable barrier will be placed directly beneath the pump to prevent any fuel or oil spillage from normal equipment operation, equipment malfunction or refueling efforts from contaminating the soil beneath the trailer. Several 30 ft sections of temporary 10 inch irrigation pipe will be connected to the suction of the pump and run along the ground to the west bank of the river. A screened water intake diffuser will be used to prevent any impact to aquatic life and a high visibility device will be located in the river to warn anyone using the river for recreational purposes. Additional sections of pipe will be run from the discharge of the pump to the proposed well.

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Item A: Existing Land Use

Land use in the immediate vicinity of the project area is a Louisiana Department of Transportation Highway (LA Hwy 440) bridge. The area immediately adjacent to the project site is wooded. To the Northeast, across the river, is an area that has been cleared and is covered with grass. There is a small shed located in this area.

Item B: Historical/Archeological Sites

Archival research conducted via the internet, at the Louisiana Division of Archaeology's (LDA) Louisiana Cultural Resources database, indicated there were no archaeological sites within a 1 square mile area. Review of the National Park Service's (NPS) National Register of Historic Places (NRHP) indicated there were no historic properties within the 1 square mile review area. The project area is located on Louisiana DOTD Hwy 440 right of way adjacent to the bridge that crosses the Tangipahoa River. Numerous construction projects have taken place at the site and no archaeological finds were recorded. The pumping project will take place on an unimproved road without disturbing the surface material.

Item C: Economic Impact of the Project

The Tuscaloosa Marine Shale (TMS) is an unconventional resource play that has been estimated to contain over 7 billion barrels of potential oil production. The TMS potential area stretches across a large portion of central Louisiana into the Florida parishes. The only way to produce oil from a shale play is to hydraulically fracture the shale. This process requires the use of a large volume of water. The project will have a short term positive impact to the local area as a result of creating approximately 50 jobs. These workers will purchase goods and services that will be associated with the water withdrawal. The long term impact of a producing oil and gas well will expand both in duration as well as scope. This includes longer term jobs, increased revenues for local businesses, and increased tax revenues.

Item D: Wilderness/Rural Quality

Tangipahoa Parish has a population density of approximately 153 people per square mile according to the 2010 census data. The temporary installation of the water pump hoses into the Tangipahoa River will not affect the rural quality of the project area, since it is located adjacent to a major highway. There may be a short term increase in noise levels; however, this will not last longer than the duration of the project.

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Item E: Scenic/Aesthetic Value

The temporary installation of the water pump hoses at the bridge crossing will not create a reduction in the scenic or aesthetic value. The hoses will only be viewable for a short stretch of the river and it will be in conjunction with the superstructure of the highway bridge.

Item F: Recreational Use/Opportunities

Boating is not likely to be affected by the project as this segment of the river does not appear to be consistently navigable to provide access to motor boats. However, kayaks and canoes would likely be able to access the river. Goodrich will require its contractor to install a highly visible warning device at the suction of the hose to warn recreational users of the obstruction.

Item G: Ecological Systems Present

Ecological systems present at the site include the open water of the Tangipahoa River and the riparian zone which extends to the upper terrace. Behind the terrace, the habitats diversify based on elevation. The more elevated areas are in a natural combination of pines and hardwood. By locating the pumps on the unimproved road, there will be no deterioration or destruction of any ecological system in the area.

Item H: Fish and Wildlife in the Area

There are regulated hunting seasons for white-tailed deer, rabbit, squirrel, water-fowl, dove and turkey in the proposed area. The only observed wildlife was the common house sparrow (*passer domesticus*), blue jay (*cyanocitta cristata*) and grey squirrel (*sciurus carolinensis*). Along the unimproved road there was one set of tracks of a white tail deer (*odocoileus virginianus*), one set of raccoon (*procyon lotor*) tracks, and one set of domestic dog (*canis lupus familiaris*) tracks.

Sport fishing in Tangipahoa Parish is reported by Louisiana sport fishing websites as excellent most days of the year. Field studies did not observe any aquatic life at the pump site. A suction diffuser and screen will be installed on the hoses to protect aquatic life.

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A total of 5 separate field visits were made to the withdrawal site to inspect for wildlife and emphasis was given to the species that are listed under the Louisiana Department of Wildlife and Fisheries Species by parish list. None of the listed species were observed.

The temporary installation of pump hoses does not anticipate any significant impacts to wildlife or fisheries in the project area.

Item I: Botanical Elements (Vegetation)

An evaluation of botanical species present within the riverbank found the dominant species to be willow (*salix*) trees. Yaupon (*Ilex vomitoria*), dewberry (*Rubis trivialis*), golden rod (*Solidago*), and greenbriar (*Smilax*) were also present. Other species at the project site include: loblolly pine (*Pinus taeda*) and river birch (*Betula nigra*). A special emphasis was given to the Louisiana Department of Wildlife and Fisheries Species by Parish list.

Because the portable pumps will be placed on the existing unimproved road no impact can be foreseen to the botanical ecosystem of the area.

Item J: Geological Features

According to the U.S.G.S Mineral Resources Geologic units in Tangipahoa Parish the area consist of Phanerozoic, Cenozoic, Quaternary and Pleistocene. This is characterized by tan to orange clay, silt, and sand with large amounts of basal gravel. There are no known unique geologic features located in the project area. The scope of work does not include any disturbance of the surface.

Item K: Hydrological Features

The Tangipahoa River originates Northwest of McComb in southwest Mississippi and runs south 122 miles through Lake Tangipahoa in Percy Quin State Park before passing into southeast Louisiana. Its mouth opens to the northwest region of Lake Ponchartrain. The project area includes a short segment of approximately 50 ft. of the Tangipahoa River, its banks and the immediately surrounding area (approximately 1,000 ft. radius). The project area includes an unimproved road, a wooded area and an open area covered with grass and a few hardwoods.

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There will be only temporary and minor disturbances to the channel and banks of the river due to the worksite and there are no expected alterations to the hydrological features of the river.

Item L: Water Quality/Quantity

The Louisiana Department of Environmental Quality (LDEQ) 2012 Water Quality Integrated Report indicates that the project area is located on the upper Tangipahoa River on sub-segment LA 040701_00. This segment extends from the Mississippi state line to I-12. The report indicates that the fish and wildlife propagation (FWP) is not supported in sub segment LA 040701_00. However, this sub segment does support outstanding natural resource waters (ONR), primary contact recreation (swimming) and secondary contact recreation (boating).

According to the 2012 Water Quality Integrated Report the sub segment is impaired for mercury in fish tissue from atmospheric disposition.

Because the primary impact to the river due to this project is a potential reduction in water quantity, an assessment of water flow through the area was conducted using data from the LA Water Resources Technical Reports 35 and 70.

The proposed withdrawal site is located south of the USGS gaging station #07375300 at Kentwood and north of the gaging station #07375500 at Robert, which according to the USGS is the only instantaneous flow recording station on the river. The flow rates of the river at both stations are as follows:

Station	7Q10	Gal/Day
Kentwood (#07375300)	98 ft ³ /sec	63,334,656
Robert (#07375500)	285 ft ³ /sec	184,187,520

Based upon the proposed water withdrawal rate of 20,000 barrels per day or 840,000 gallons per day, the water withdrawn is approximately 1.3% of the 7Q10 volume of the river at the Kentwood station. This rate is not expected to have an appreciable impact to the quantity of water in the river.

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Compliance History

Goodrich Petroleum Corporation places a high value on our responsibility to provide a safe and healthy work environment for our employees, contractors and local communities while protecting the environment in which we operate.

We manage our environmental, safety and health responsibilities utilizing the following principles:

- We maintain an active commitment to environmental, safety and health excellence, and plan our operations accordingly.
- We comply with applicable environmental, safety and health laws and regulations and implement prudent practices.
- We oversee and hold each employee, contractor, supplier and stakeholder accountable for integrating environmental, safety and health standards into their work activities.
- We strive for continuous improvement in our environmental, safety and health systems by setting challenging goals, systematically measuring and evaluating performance, and learning from our experiences.
- We monitor our employees and contractors daily to ensure that every employee understands that they are ultimately responsible and accountable for environmental, safety and health performance.

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Plan to Minimize/Offset Potential Impacts to River

Potential impacts to the Tangipahoa River will be negligible and temporary. As detailed in the Water Quality/Quantity section the water withdrawal rates will be significantly less than normal river flow through this segment. Water withdrawal guidelines indicate that withdrawal activities should cease if the river discharge drops below the 7Q10 flow. The only instantaneous flow recording station on the Tangipahoa River is station #07375500 at Robert, LA. Due to the location of the Robert gaging station in relation to the proposed water withdrawal site there will be a lag in water levels and therefore the action level will be adjusted up from the 7Q10 of 285 ft³/sec at the Robert station to 300 ft³/sec. In the unlikely event that the instantaneous flow rate measured at the Robert station drops below this action level the water withdrawal activities will be discontinued until the flow rate recovers.

The pump that will be used to withdraw water is a trailer-mounted, self-contained unit. It will be transported to the withdrawal point by truck along existing roads. The withdrawal point is selected where an existing road passes in close proximity of the river, thus minimizing any impact to vegetation.

The proposed withdrawal point is at a deeper portion of the river minimizing all potential impacts to the river and the withdrawal operations will not impede recreational access to the river. A suction diffuser will be installed on the hose in the river to prevent impacts to aquatic life.

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Listing of Alternatives to the Project

Alternative 1: No Action

This option is not favorable due to the loss in economic opportunity for the project developers, potential employees, local businesses and local tax revenues.

Alternative 2: Use of Ground Water

This option is not a favored option of the company, the state or the public. The Louisiana Water Resources Report from March 15, 2012 encourages hydraulic fracturing companies to seek alternatives to the use of ground water and suggests that such companies utilize the abundant surface water available in Louisiana. The actions by companies, such as Goodrich Petroleum, taken to utilize surface water in their fracturing operations as opposed to ground water, reserves waters from the lower yielding, high quality aquifers for public supplies and domestic use.



State of Louisiana

BOBBY JINDAL
GOVERNOR

DEPARTMENT OF WILDLIFE AND FISHERIES

ROBERT J. BARHAM
SECRETARY

Dear Scenic River Permit Applicant:

Please review and concur on the following statement regarding the issuance of permits by the Louisiana Department of Wildlife and Fisheries. This agreement must be signed and returned before a Scenic River Permit can be issued.

"I have been advised and do understand that by applying for and accepting a Scenic Rivers permit issued by the Louisiana Department of Wildlife and Fisheries, I am being allowed to engage in an activity which would otherwise be prohibited by law or for which a permit is required. I understand that the permit is not a license and confers no property right upon me. I specifically agree to abide by all State and Federal fish and wildlife laws and regulations, and all State and Federal laws and regulations which relate to this permit or the permitted activity, and by all other terms and conditions of this permit. I understand that the permit for which I am applying may be suspended, annulled, withdrawn or revoked and that I may be assessed civil penalties, all in accordance with the provision of the Louisiana Administrative Procedure Act, and that I may be denied future permits as a consequence of my failure to fully and completely comply with the terms and conditions of the permit, as well as other laws and regulations pertinent thereto. If served with or notified of a cease and desist order signed by the Scenic Rivers Administrator, I agree to immediately and without delay cease all activities and operations which relate to the permitted activity or which are impacting the Scenic River, until such time as the matter can be resolved in an adjudicatory hearing pursuant to the Louisiana Administrative Procedure Act. I understand and agree that any permit issued to me by the Louisiana Department of Wildlife and Fisheries is in the nature of a privilege which is being voluntarily extended to me by the Department and the failure on my part to cooperate with the Department can result in the loss of the privilege conferred and the denial of future requests for permits. By accepting this permit, I evidence my agreement to be bound by all conditions and stipulations set forth herein."

A handwritten signature in cursive script, appearing to read "Thomas Homer", written over a horizontal line.

Authorized Signature

A handwritten date "3-31-14" written in cursive script over a horizontal line.

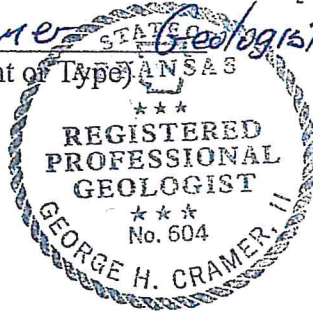
Date

PROFESSIONAL ATTESTATION

By my signature below, I certify that I have read the information contained herein, and that in my professional opinion, and based upon the principles of sound science, the proposed withdrawal will not pose any unreasonable impacts on the running water resources of the state.

George H. Cramer 4/10/14
Signature Date

George H. Cramer Geologist
Name and Discipline (Print or Type)



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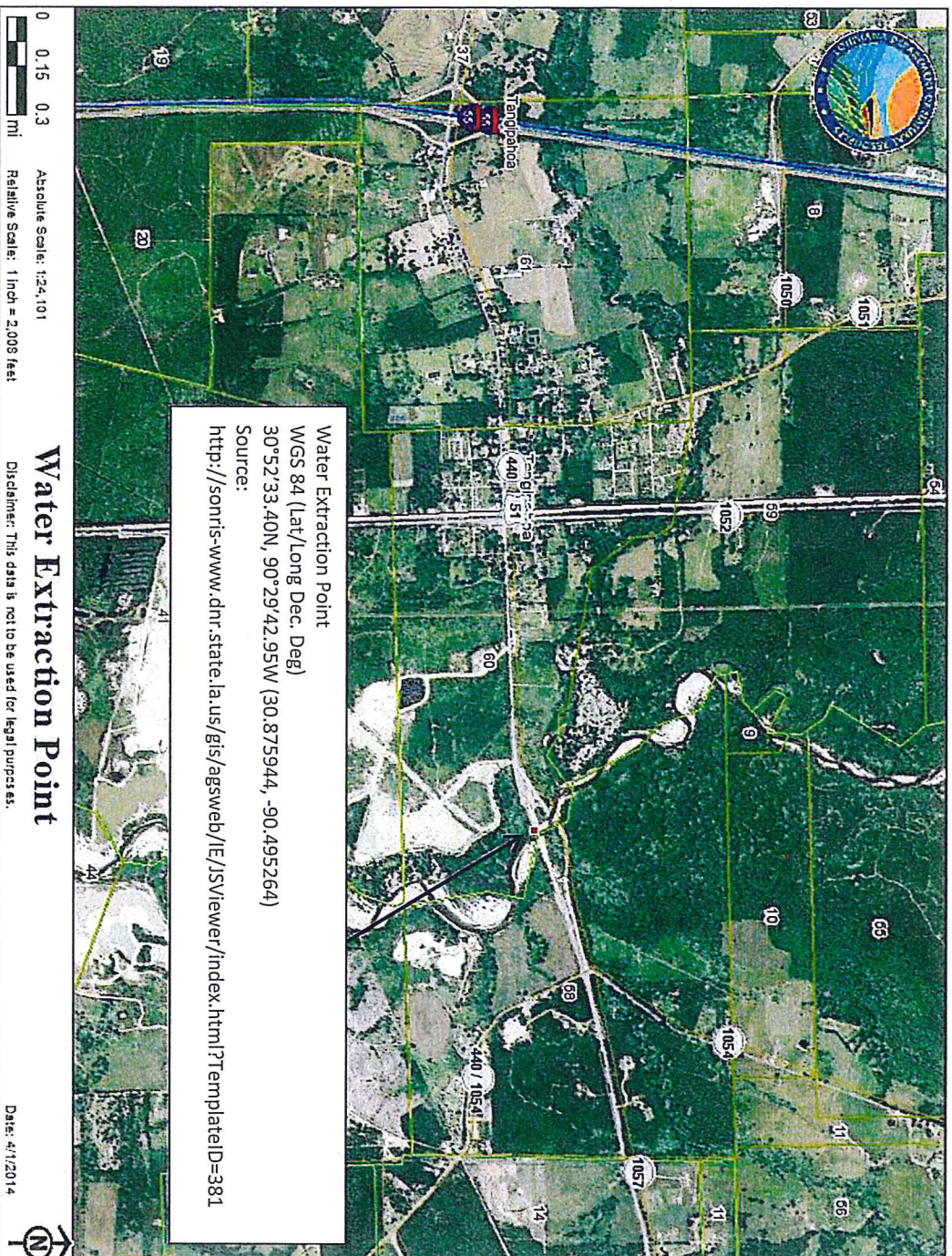


Figure 1 Vicinity Map showing site location and proximity to landmarks.

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Figure 2 Aerial view of site

Sterling Global

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Figure 3 West bank of Tangipahoa River @ LA Hwy 440



Figure 4 Unimproved road facing east at west bank of Tangipahoa River @ LA Hwy 440

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Figure 5 Unimproved road facing west towards Easley Rd at Tangipahoa River @ LA Hwy 440



Figure 6 Unimproved road facing east at Tangipahoa River @ LA Hwy 440

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Figure 7 Unimproved road facing east towards the west bank of the Tangipahoa River @ LA Hwy 440

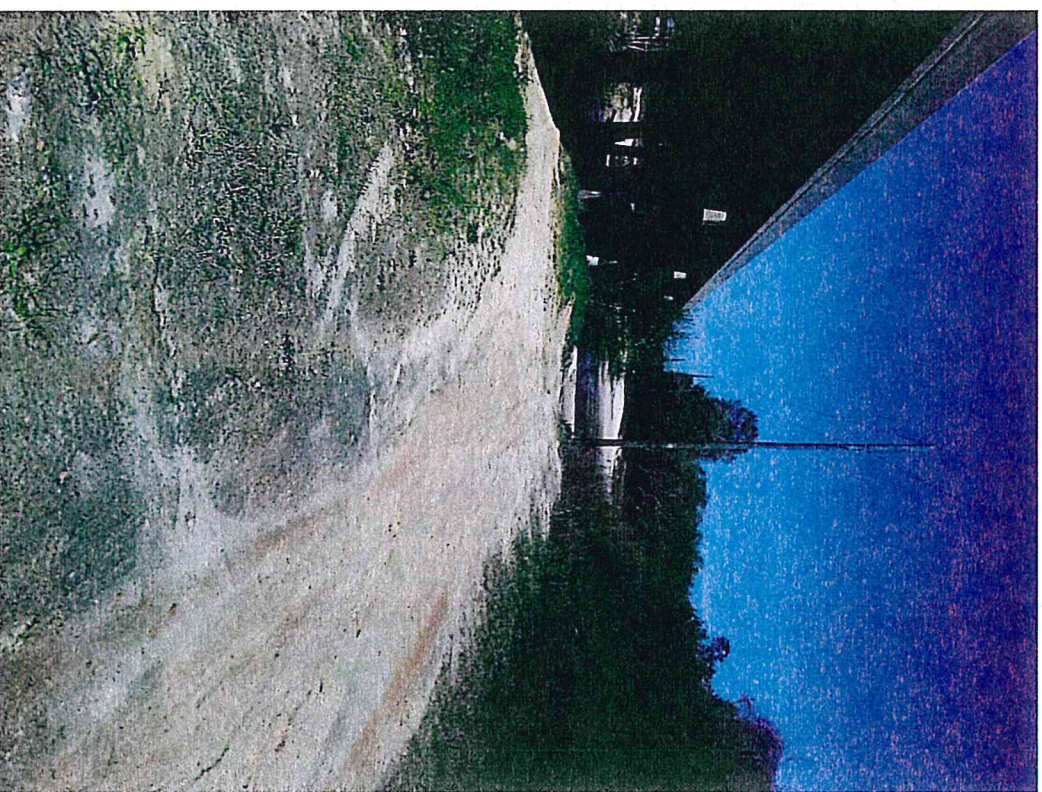


Figure 8 Unimproved road facing east at the west bank of the Tangipahoa River @ LA Hwy 440

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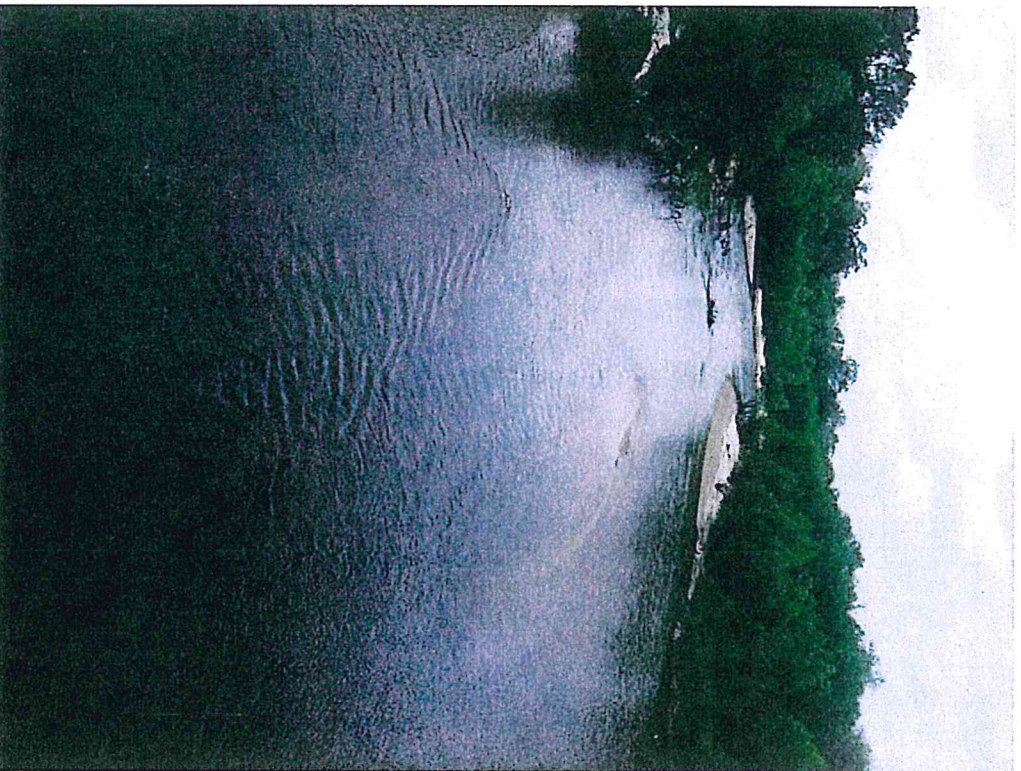


Figure 9 View to the north of the Tangipahoa River from the Hwy 440 bridge



Figure 10 View to the south of the Tangipahoa River from the Hwy 440 bridge

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List of All Other Local, State and Federal Permits Required

Federal	
Agency	Permit
U.S. Army Corp of Engineers – New Orleans District	Section 10

State	
Agency	Permit
Louisiana Department of Transportation and Development	Project Permit

Local	
Agency	Permit
Tangipahoa Parish	None

SECTION 9-2-7

SECTION 10-2-7

SECTION 11-2-7

Originally drawn by CAB
Words 2 & 4

SECTION 58-2-7

Gray and Company, Inc.
1) 2331 Edenborn Ave
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2) 321 S Cypress St
Hammond, LA 70403
3) Gray Insurance Co (subsidiary)
3601 N I 10 Service Rd
Metairie, LA 70002 (504) 888-7730

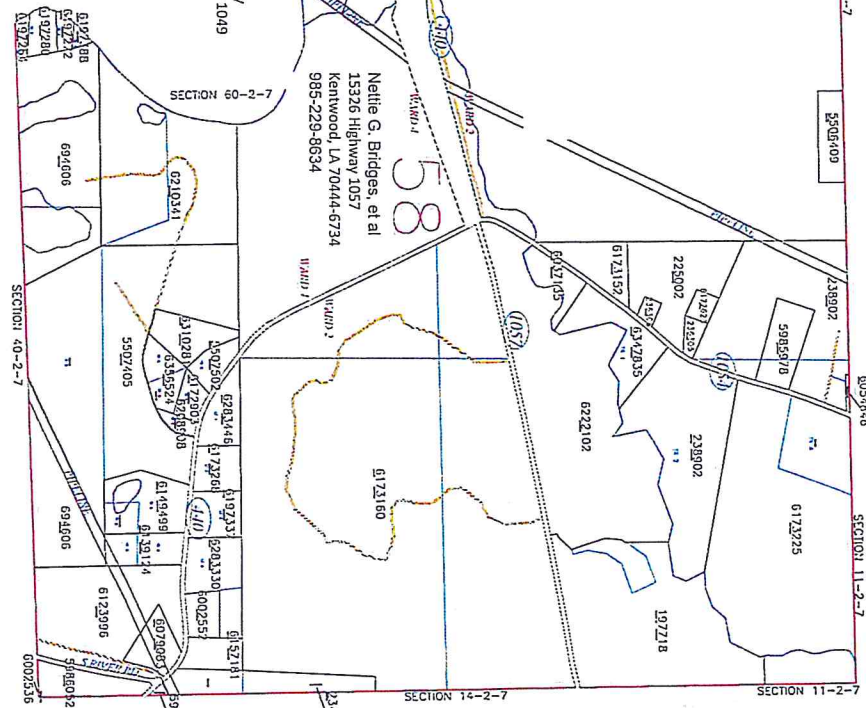
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Section
58-2-7
Drawing
Updated
March-2014
RPM

11-2-7-1
11-2-7-2
11-2-7-5 *

THIS PARCEL MAP
IS NOT A SURVEY
IT IS A MODEL
OF THE AREA REQUESTED.

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References

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Louisiana Department of Natural Resources, <http://sonris.com>

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